

## **REMARKS/ARGUMENTS**

Reconsideration of this application is requested. Claims 13-21 and 23 -26 are in the case.

### **I. CLAIM OBJECTIONS**

Regarding claim 23, the Action asserts that the recitation "for controlling the mass flow of catalyst to a polymerization reactor" merely recites the purpose or the intended application of the process of claim 13. In response, claim 23 has been amended to specify the further step of controlling the mass flow of catalyst to the polymerization reactor.

Regarding the objections to claims 24 and 26, these claims have been amended along the lines suggested in the Action. No new matter is entered. Withdrawal of the claim objections is respectfully requested.

### **II. THE ANTICIPATION REJECTION**

Claims 13-21 and 23-26 stand rejected under 35 U.S.C. §102(b) as allegedly anticipated by CELANESE Corp (GB 896,786) (GB '786). The rejection is respectfully traversed.

The claimed process is for providing a flow of particulate matter to a reactor. The process comprises intermittently adding the particulate matter and a diluent to a mixing tank, continuously withdrawing a slurry of the particulate matter in the diluent from the mixing tank for introduction into the reactor, and prior to each addition of the particulate matter and the diluent to the mixing tank, measuring or calculating the concentration of

the particulate matter in the diluent already in the mixing tank. The amount of the particulate matter and the diluent subsequently added is measured so as to achieve the same concentration at the end of the addition as that measured or calculated prior to the addition.

A disadvantage associated with the known approach of feeding a mixture of dry solid particulate catalyst and diluent to a catalyst storage tank for mixing before injection in controlled amounts into a reaction vessel for contact with monomer reactants is that because the input of catalyst and diluent into the mixing tank is continuous, and the discharge of slurry from the mixing tank into the reactor is also continuous, it is not possible to know the precise concentration of the catalyst in the slurry which is discharged at any particular point. Therefore, it has been necessary to estimate this based on the density of the slurry, which can itself vary with temperature and pressure. The present invention avoids the above problems by adding the diluent and particulate matter to the mixing tank intermittently and prior to each such addition determining the concentration so that the concentration after addition is also known.

Referring to the Action, in regard to the claimed step of intermittently adding particulate matter, the Action refers to page 1, lines 16-25 of GB '786 which states:

“According to the invention, a powdered solid catalyst is fed into a reactor by continuously feeding the catalyst at a controlled rate into a zone provided with a discharge opening communicating with the reactor and continuously feeding a liquid at an independently controlled rate into said zone.....”

The quoted passage refers to “continuously feeding the catalyst” and “continuously feeding a liquid” which acts to carry the catalyst into the reactor.

However, there no disclosure or suggestion whatsoever in this quoted passage of intermittent feeding.

The Action goes on to refer to Fig. 1 of GB '786. However, Fig 1 of GB '786 is a diagram showing an apparatus, and provides no information to the reader as to whether any particular addition is intermittent or continuous.

Reference is then made in the Action to page 1, line 85 - page 2, line 1 of GB '786, which states:

"Catalyst drops from the end of the tube through the surge tank and through a discharge opening into a downcomer extending into the reaction vessel.

This disclosure provides no indication at all as to how the catalyst is added. Certainly, there is no disclosure that addition of the catalyst is intermittent.

In order to further emphasize the step of measuring or calculating the concentration of particulate matter in the diluent already in the mixing tank, the presently claimed process has been amended to state:

"...prior to each addition of particulate matter and diluent to the mixing tank, measuring or calculating the concentration of particulate matter in the diluent already in the mixing tank".

The claimed process therefore requires that the measurement or calculation occurs at a precise point, namely between additions. In other words, the measurement occurs when there is no material being added.

The passages cited in the Action in connection with this aspect of the claimed process refer to a level control 30 in Fig. 1 of GB '786, and the fact that the catalyst feeder/hopper is equipped with a metering device (page 1, lines 75-84). However, GB

'786 contains no disclosure of a step of measuring or calculating at the particular point in time as recited in the presently claimed process. In particular, GB '786 contains no disclosure (or suggestion) that the measuring or calculating takes place at a point in time when no particulate matter is being added to the mixing tank. This is simply not disclosed or suggested by GB '786.

The Action alleges that because the term "intermittently" as used in the presently claimed process does not define a specific time interval between starting and stopping addition of particulate matter, or what happens between additions, it can cover continuous processes such as GB '786 because the two components cannot be added "endlessly". In response, it is self-evident that a continuous process cannot be everlasting. However, the presently claimed process also specifically recites the step of measuring or calculating "prior to each addition", i.e., at a point in time when no particulate matter and diluent are being added. The additions are made intermittently to permit measuring or calculating the concentration of particulate matter in the diluent already in the mixing tank prior to each addition.

There is clearly no disclosure in GB '786 of measurement or calculation occurring at a point in time when no particulate matter and diluent are being added. GB '786 is therefore not anticipatory of the presently claimed process. Withdrawal of the anticipation rejection of claims 13-21 and 23-26 is respectfully requested.

### **III. THE OBVIOUSNESS REJECTION**

Claims 24 and 26 stand rejected under 35 U.S.C. §103(a) as allegedly unpatentable over GB '786. The rejection is respectfully traversed.

At the outset, it is noted that claims 24 and 26 are dependent on claim 13 and, therefore, incorporate the features of claim 13 which are not disclosed or suggested by GB '786 for the above-discussed reasons. Claims 24 and 26 are likewise not rendered obvious by GB '786.

In addition, as noted in earlier prosecution, the present invention is concerned not only with intermittent feeding, but also is about the combination of intermittent feeding with the determination of concentration prior to each addition, as recited in claim 13. It is this combination which is the basis of the advantage of the present invention. There is nothing in the prior art discussing either the problem of determining slurry concentration during continuous feeding, or any solution which remotely suggests the presently claimed invention.

Based on the above, it is clear that one of ordinary skill would not have been motivated to arrive the presently claimed process based on GB '786. GB '786 does not therefore give rise to a *prima facie* case of obviousness. Withdrawal of the obviousness rejection is respectfully requested.

#### IV. AMENDMENTS

Claim 13 has been amended to more positively recite the measuring/calculating step and to improve its form. Minor amendments have been made to the dependent claims to meet the formal points. No new matter is entered and no new issues are raised. Entry and favorable consideration of the amendments are respectfully requested.

WALWORTH  
Appl. No. 10/538,844  
November 10, 2009

Favorable action is awaited.

Respectfully submitted,

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